SF

CITY OF SPOKANE, WASHINGTON · FOUNDED IN 1881 ·

April 16, 1991

U.S. EPA
1200 Sixth Avenue (HW-093)
Seattle, Washington 98101
ATTENTION: Monica Rolluda

Dear Ms. Rolluda:

Attached is the information requested in your letter of April 2, 1991.

If you have any questions, please call at (509) 456-2645.

Thank you.

Sincerely,

Leon Sproule

Leon Sproule
Water/Hydro Plant Superintendent

slc

Leon
625 6641

Fax # 625 7800
489-3858

1.2

30953

CITY OF SPOKANE WATER SYSTEM

POPULATION SERVED — APPROX. 187,000

TOTAL NUMBER OF SERVICES

RESIDENTIAL	55,033 active
COMMERCIAL	9,285 active
	64,318 total

	RESIDENTIAL	COMMERCIAL
LOW SYSTEM	16,704	5,471
WOODLAND HEIGHTS	139	0
HIGHLAND	236	19
GEIGER HEIGHTS	21	4
AIRPORT	3	103
PLAINS	25	11
LOW SYSTEM TOTAL	17,128	5608
INTERMEDIATE SYSTEM	3600	710
HIGH	6130	395
TOP	5260	345
GLENNAIRE	216	6
INTERMEDIATE SYSTEM TOTAL	15,206	1456
NORTH HILL SYSTEM	21,993	2,204
MIDBANK	422	11
INDIAN HILLS	39	0
FIVE MILE	206	6
SHAWNEE	39	0
NORTH HILL SYSTEM TOTAL	22,699	2,221

APPROXIMATE POPULATION BY SYSTEM

SYSTEM	% of Services	% of Water	Population
LOW	35%	* 50.0%	65,450
INTERMEDIATE	26%	23.3%	48,620
NORTH HILL	39%	26.7%	72,930

* (Low Sys. has 60% of Commercial Services) *

WELL ELECTRIC WELL STATION WELL E
2701 N. WATERWORKS AVENUE

ACTIVE WELL NORMALLY OPERATED MAY-OCTOBER

2 WELLS
45' DIAMETER
1918.7 FLOOR ELEVATION
29' AVERAGE DEPTH TO WATER
50' DEPTH TO WELL BOTTOM

4 PUMPS { 1-1750hp to Low Sys. }
{ 1-900hp to Intermediate Sys. }
{ 2-900hp to North Hill Sys. }

56,400,000 GPD TOTAL RATED CAPACITY
24,000,000 GPD TO LOW SYSTEM
9,400,000 GPD TO INTERMEDIATE SYSTEM
23,000,000 GPD TO NORTH HILL SYSTEM

1990 PUMPAGE FOR WELL ELECTRIC WELL STATION

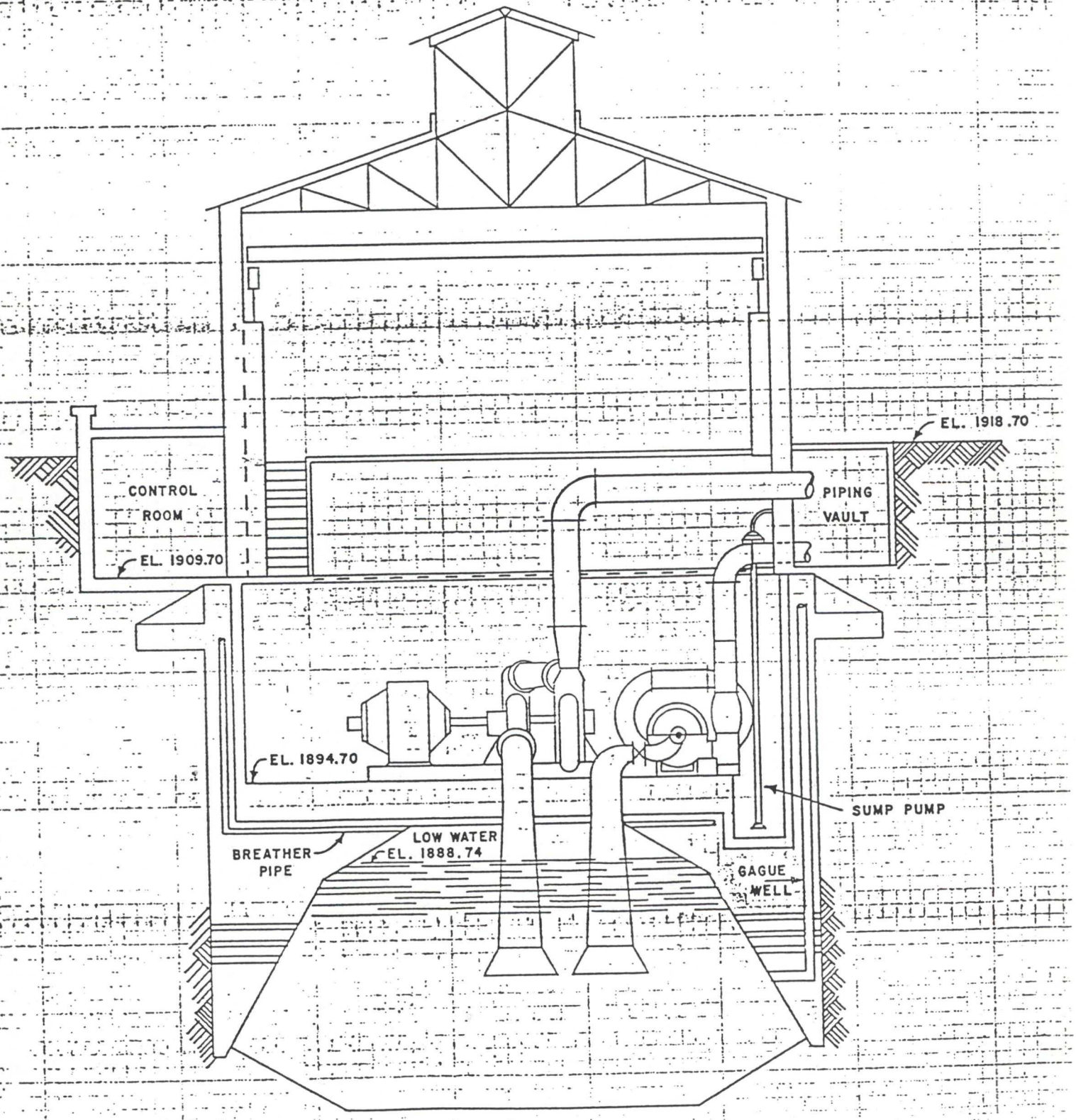
3,357,860,000 GAL. TO LOW SYSTEM
{ 30% of total Low Sys. Yearly Pumpage }

603,701,000 GAL. TO INTERMEDIATE SYSTEM
{ 13% of total Intermediate Sys. Yearly Pumpage }

228,143,000 GAL. TO NORTH HILL SYSTEM
{ 4% of total North Hill Sys. Yearly Pumpage }

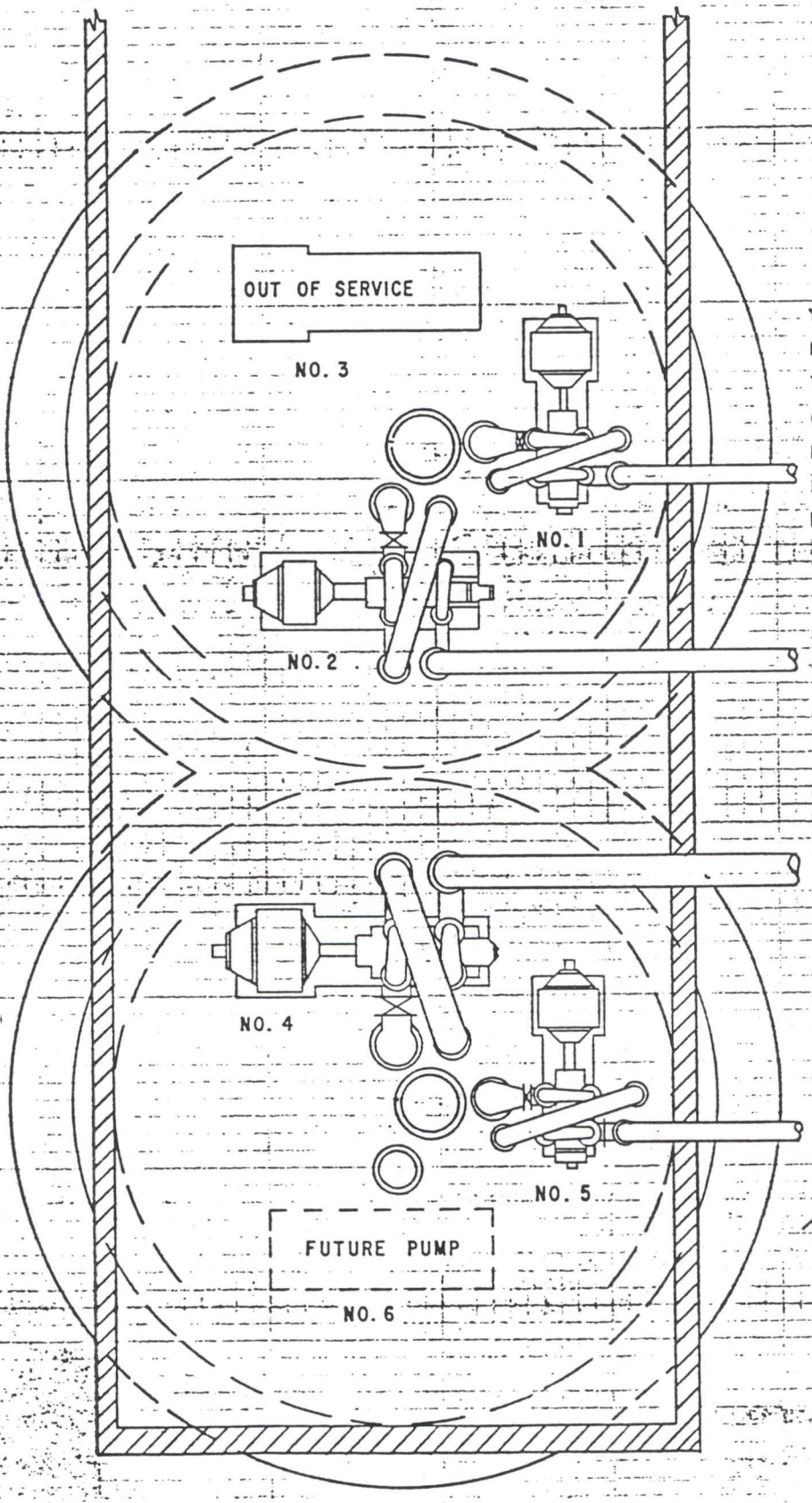
{{ WELL ELECTRIC SUPPLIED 19.0% OF SYSTEM ANNUAL TOTAL WATER }}

WELL ELECTRIC PUMPING STATION



END VIEW & SECTION THROUGH WELL & BLDG.

WELL ELECTRIC PUMPING STATION



PUMP No. 1

YEAR IN SERVICE 1925
ELEV. 1897.80
TYPE - CENTRIFUGAL
CAPACITY - 5900 GPM
PRESSURE - 185 LBS.
MOTOR - 900 HP
INTERMEDIATE SYSTEM

PUMP No. 2

YEAR IN SERVICE 1925
ELEV. - 1897.80
TYPE - CENTRIFUGAL
CAPACITY - 8400 GPM
PRESSURE - 132 LBS.
MOTOR - 900 HP
LOW & NORTH HILL SYS.

PUMP No. 4

YEAR IN SERVICE 1925
ELEV. 1898.30
TYPE - CENTRIFUGAL
CAPACITY - 16,600 GPM
PRESSURE - 125 LBS.
MOTOR - 1750 HP
LOW SYSTEM

PUMP No. 5

YEAR IN SERVICE 1926
ELEV. - 1897.80
TYPE - CENTRIFUGAL
CAPACITY - 8400 GPM
PRESSURE - 139 LBS.
MOTOR - 900 HP
LOW & NORTH HILL SYSTEM

PLAN VIEW

PARKWATER WELL STATION WELL M
5317 E. RUTTER AVENUE

ACTIVE ALL YEAR

8 WELLS
6' DIAMETER
1964.1 FLOOR ELEVATION
68' AVERAGE DEPTH TO WATER
126' DEPTH TO WELL BOTTOM

8 PUMPS { 1-900hp to Intermediate Sys.}
{ 7-600hp to Low Sys.}

90,720,000 GPD TOTAL RATED CAPACITY
10,000,000 GPD TO INTERMEDIATE SYSTEM
80,720,000 GPD TO LOW SYSTEM

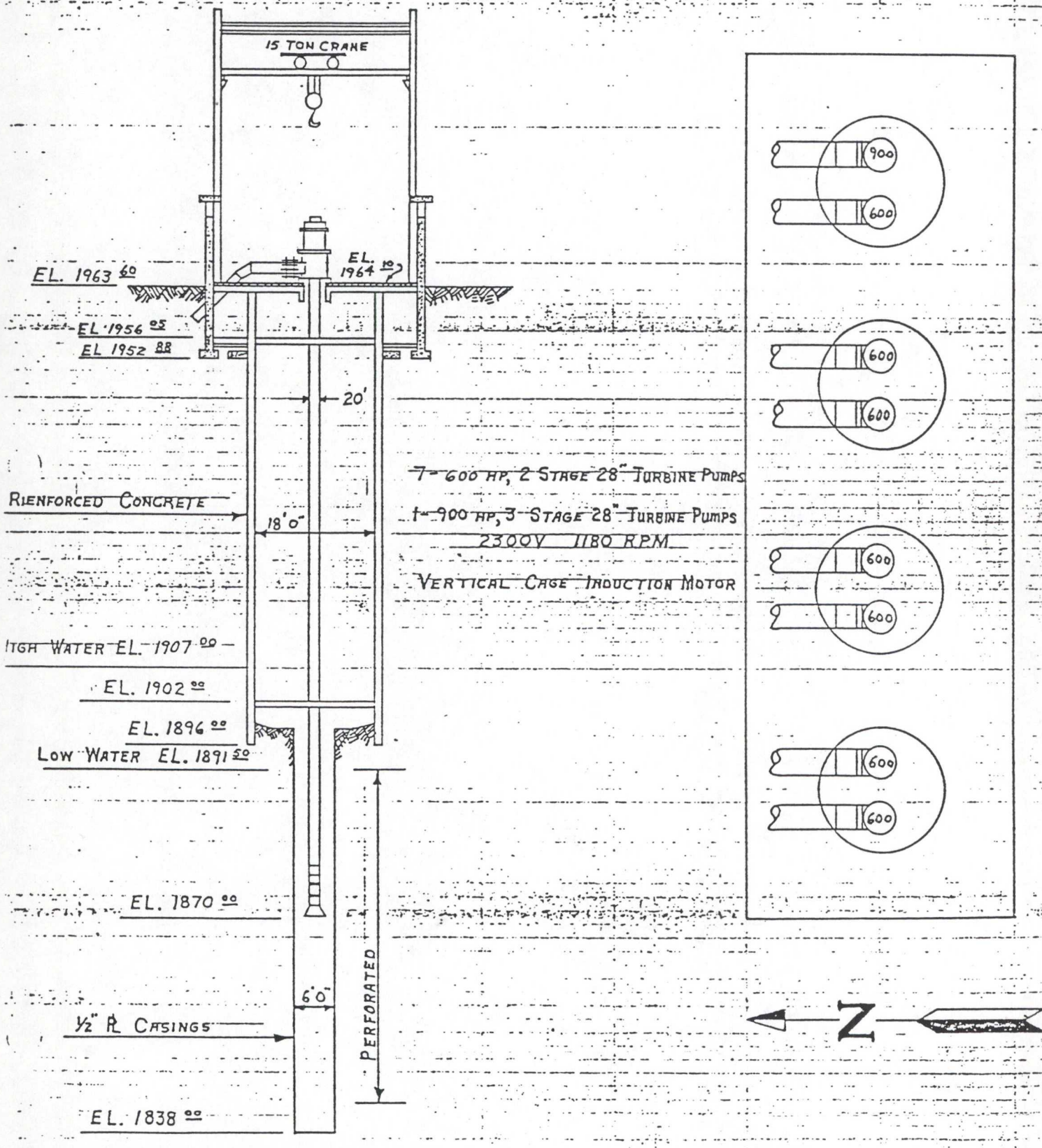
1990 PUMPAGE FOR PARKWATER WELL STATION

4,265,122,000 GAL. TO LOW SYSTEM
{ 38% of total Low Sys. Yearly Pumpage }

2,041,579,000 GAL. TO INTERMEDIATE SYSTEM
{ 43% of total Intermediate Sys. Yearly Pumpage }

{{ PARKWATER SUPPLIED 29.0% OF SYSTEM ANNUAL TOTAL WATER }}

PARKWATER PUMPING STATION



NEVADA STREET WELL STATION
2728 N. NEVADA STREET ✓

WELL C

ACTIVE ALL YEAR

1 WELL
21' DIAMETER
1960.0 FLOOR ELEVATION
85' AVERAGE DEPTH TO WATER
124' DEPTH TO WELL BOTTOM

4 PUMPS (4-400hp to Low Sys.)

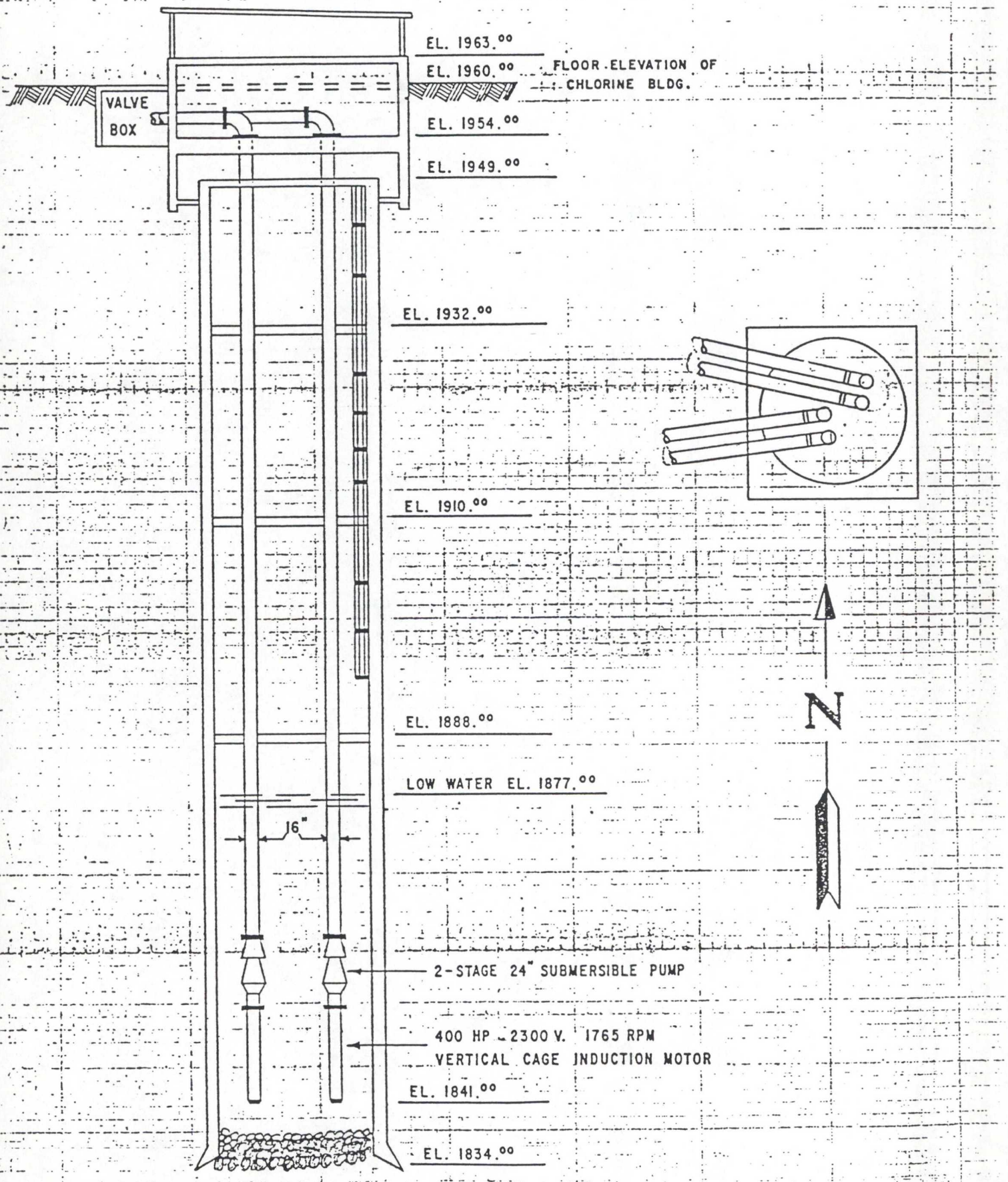
35,720,000 GPD TOTAL RATED CAPACITY
ALL TO LOW SYSTEM

1990 PUMPAGE FOR NEVADA STREET WELL STATION

3,580,456,000 GAL. TO LOW SYSTEM
(32% of total Low Sys. Yearly Pumpage)

((NEVADA STREET SUPPLIED 16.0% OF SYSTEM ANNUAL TOTAL WATER))

NEVADA STREET PUMPING STATION



BAXTER WELL STATION (NOT W/IN TARGET DIST LIMIT).
4104 W. AUBREY L. WHITE PKWY.

SEASONAL MAY-AUGUST

2 WELLS
2' DIAMETER
1696.1 FLOOR ELEVATION
33' AVERAGE DEPTH TO WATER
126' DEPTH TO WELL BOTTOM

2 PUMPS { 2-200hp to Low Sys. }

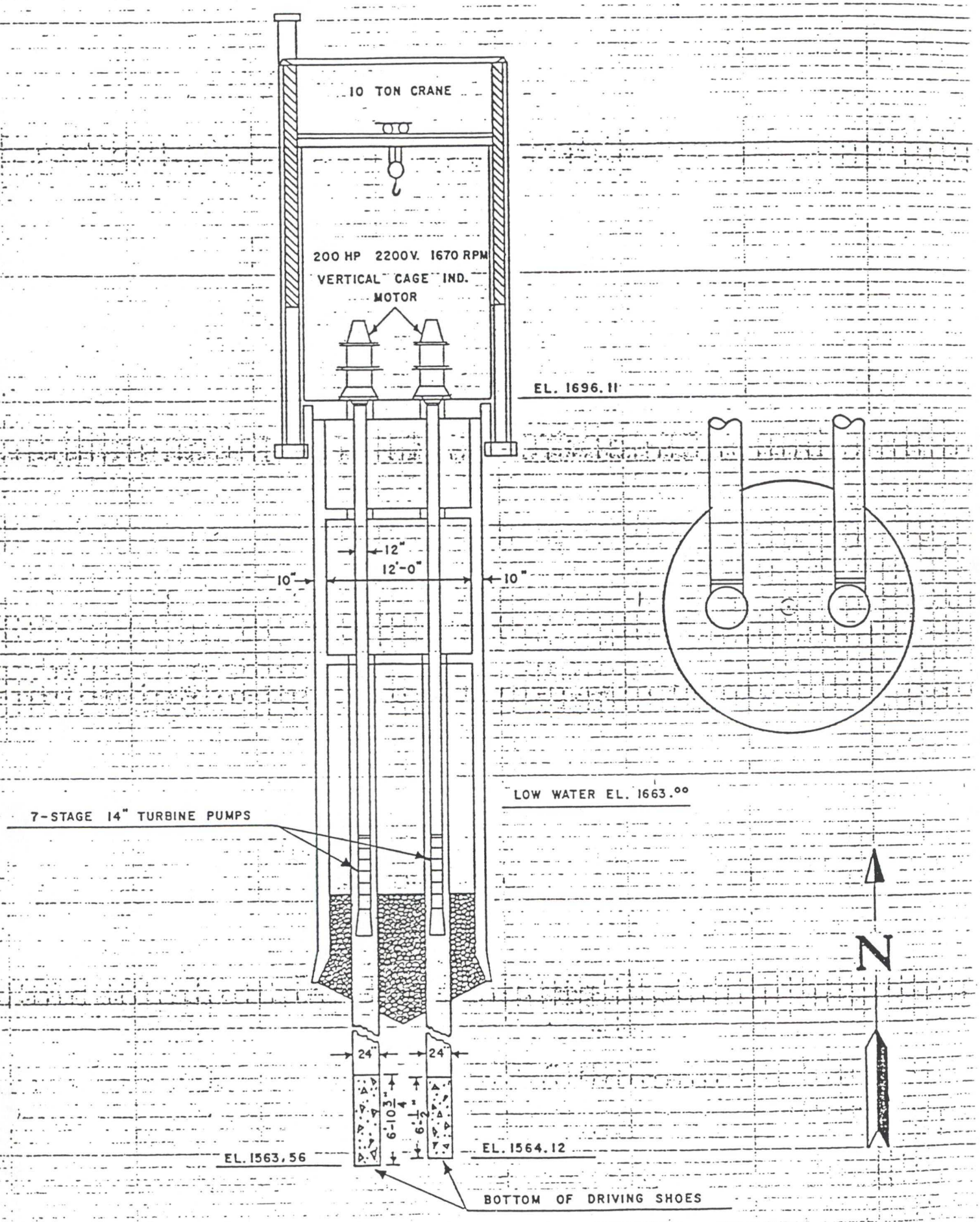
4,100,000 GPD TOTAL RATED CAPACITY
ALL TO LOW SYSTEM

1990 PUMPAGE FOR BAXTER WELL STATION

132,300,000 GAL. TO LOW SYSTEM
{ 1.2% of total Low Sys. Yearly Pumpage }

{{ BAXTER SUPPLIED 0.6% OF SYSTEM ANNUAL TOTAL WATER }}

BAXTER PUMPING STATION



RAY STREET WELL STATION WELL P
607 S. RAY STREET

ACTIVE ALL YEAR

2 WELLS
20' DIAMETER
1932.0 FLOOR ELEVATION
40' AVERAGE DEPTH TO WATER
75' DEPTH TO WELL BOTTOM

3 PUMPS { 3-900hp to Intermediate Sys. }

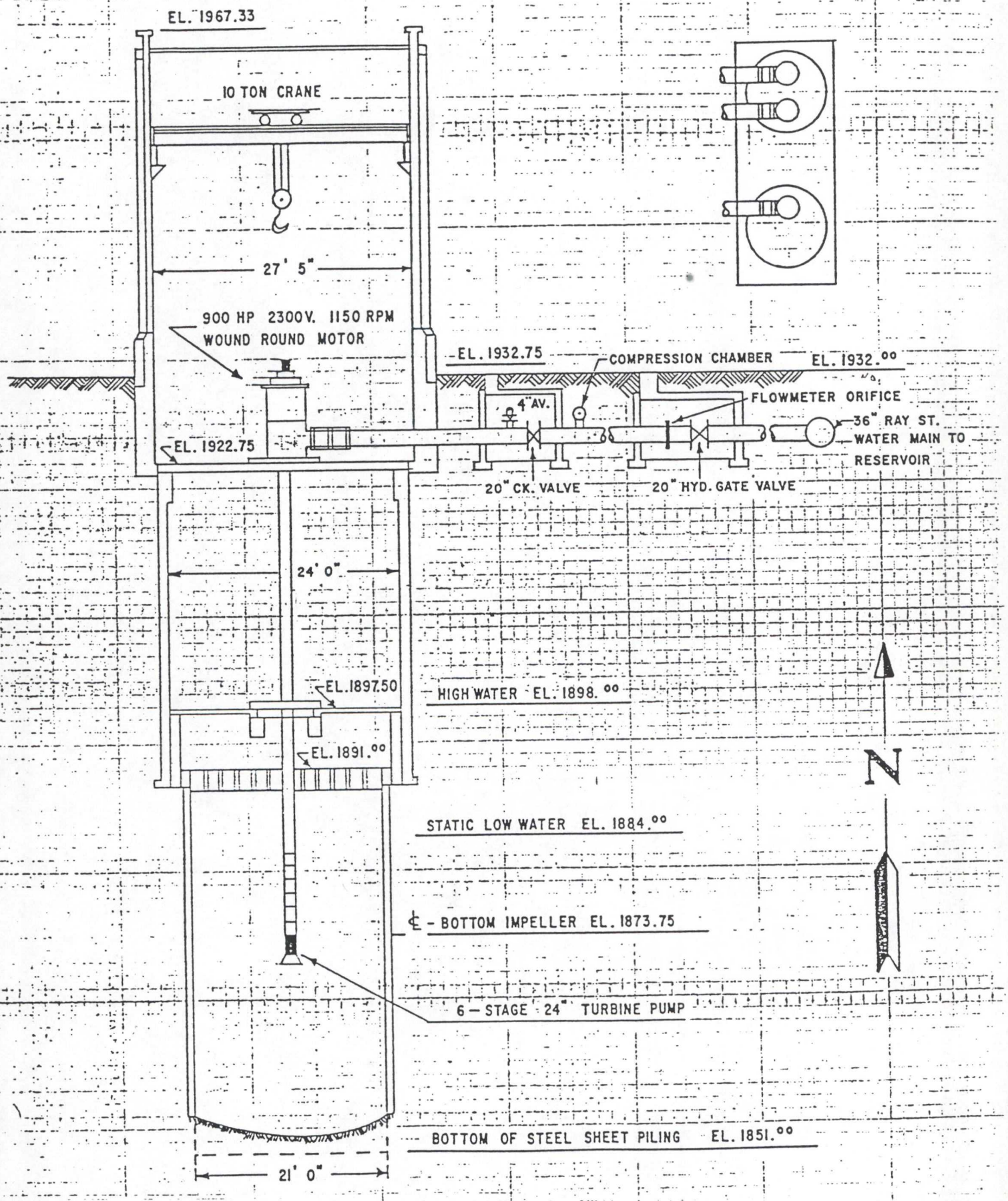
30,900,000 GPD TOTAL RATED CAPACITY
ALL TO INTERMEDIATE SYSTEM

1990 PUMPAGE FOR RAY STREET WELL STATION

2,142,796,000 GAL. TO INTERMEDIATE SYSTEM
{ 45% of total Intermediate Sys. Yearly Pumpage }

{{ RAY STREET SUPPLIED 10.0% OF SYSTEM ANNUAL TOTAL WATER }}

RAY STREET PUMPING STATION



CENTRAL AVENUE WELL STATION ✓ WELL R
5903 N. NORMANDIE STREET

ACTIVE ALL YEAR

2 WELLS
9' DIAMETER
2081.0 FLOOR ELEVATION
214' AVERAGE DEPTH TO WATER
272' DEPTH TO WELL BOTTOM

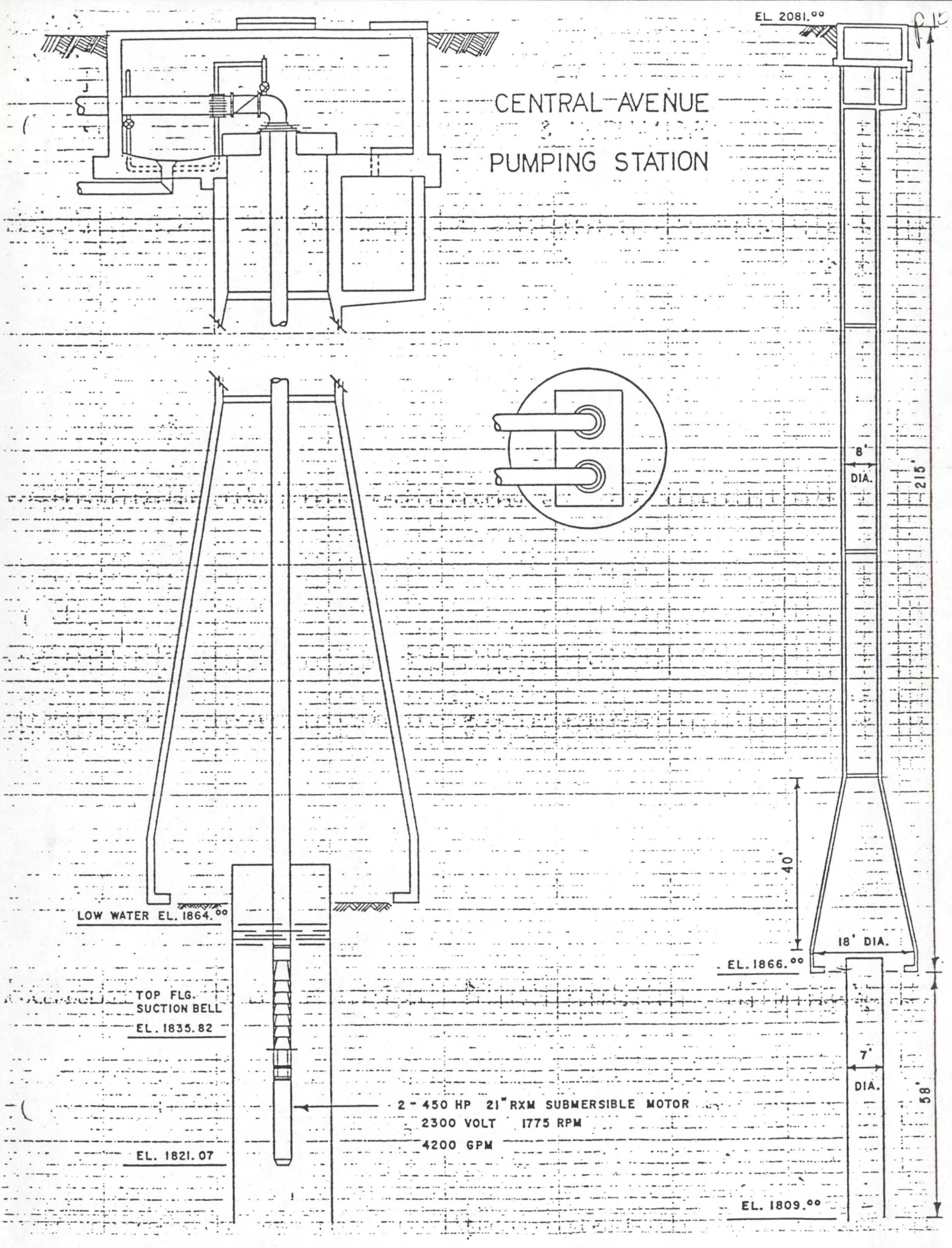
4 PUMPS (4-450hp to North Hill Sys.)

21,400,000 GPD TOTAL RATED CAPACITY
ALL TO NORTH HILL SYSTEM

1990 PUMPAGE FOR CENTRAL AVE. WELL STATION

3,664,559,000 GAL.
(62% of total North Hill Sys. Pumpage)

((CENTRAL AVE. SUPPLIED 17.0% OF SYSTEM ANNUAL TOTAL WATER))


CENTRAL AVENUE
PUMPING STATION
EL. 2081.00
8' DIA.
215'
40'
18' DIA.
EL. 1866.00
LOW WATER EL. 1864.00
TOP FLG. SUCTION BELL
EL. 1835.82
2 - 450 HP 21" RXM SUBMERSIBLE MOTOR
2300 VOLT 1775 RPM
4200 GPM
EL. 1821.07
7' DIA.
58'
EL. 1809.00

WELL B

GRACE AVENUE WELL STATION
1024 E. NORTH FOOTHILLS DRIVE

ACTIVE ALL YEAR

1 WELL
20' DIAMETER
1963.0 ELEVATION
85' AVERAGE DEPTH TO WATER
124' DEPTH TO WELL BOTTOM

2 PUMPS (2-900hp to North Hill Sys.)

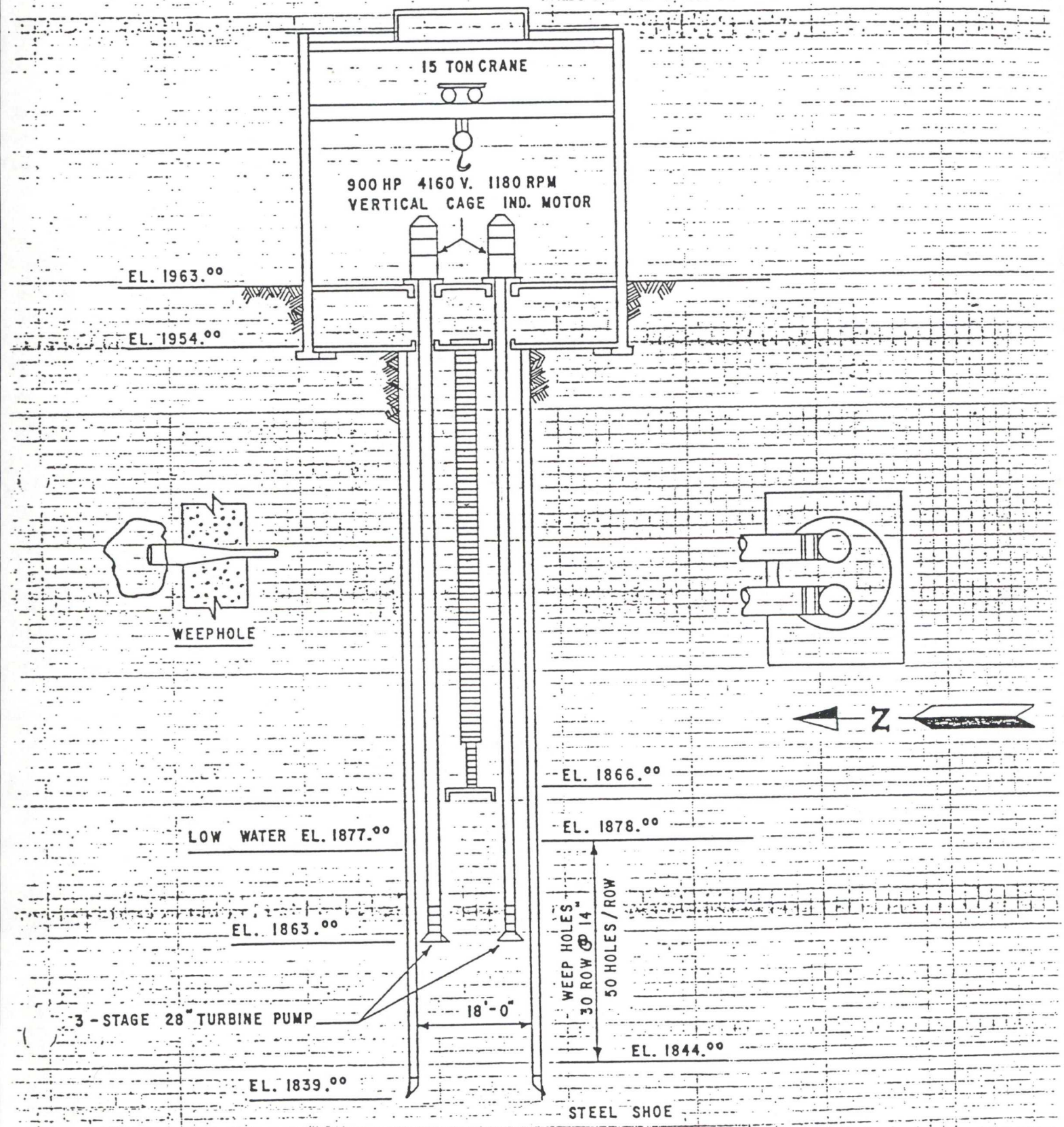
26,000,000 GPD TOTAL RATED CAPACITY
ALL TO NORTH HILL SYSTEM

1990 PUMPAGE FOR GRACE AVE. WELL STATION

1,780,301,000 GAL. TO NORTH HILL SYSTEM
(30% of total North Hill Sys.)

((GRACE SUPPLIED 8.0% OF SYSTEM ANNUAL TOTAL WATER))

GRACE AVE. PUMPING STATION



HOFFMAN AVENUE WELL STATION WELL A
2109 E. HOFFMAN AVE.

SEASONAL MAY-SEPTEMBER

2 WELLS
5' DIAMETER
2068.0 FLOOR ELEVATION
200' AVERAGE DEPTH TO WATER
235' DEPTH TO WELL BOTTOM

2 PUMPS { 2-600hp to North Hill Sys. }

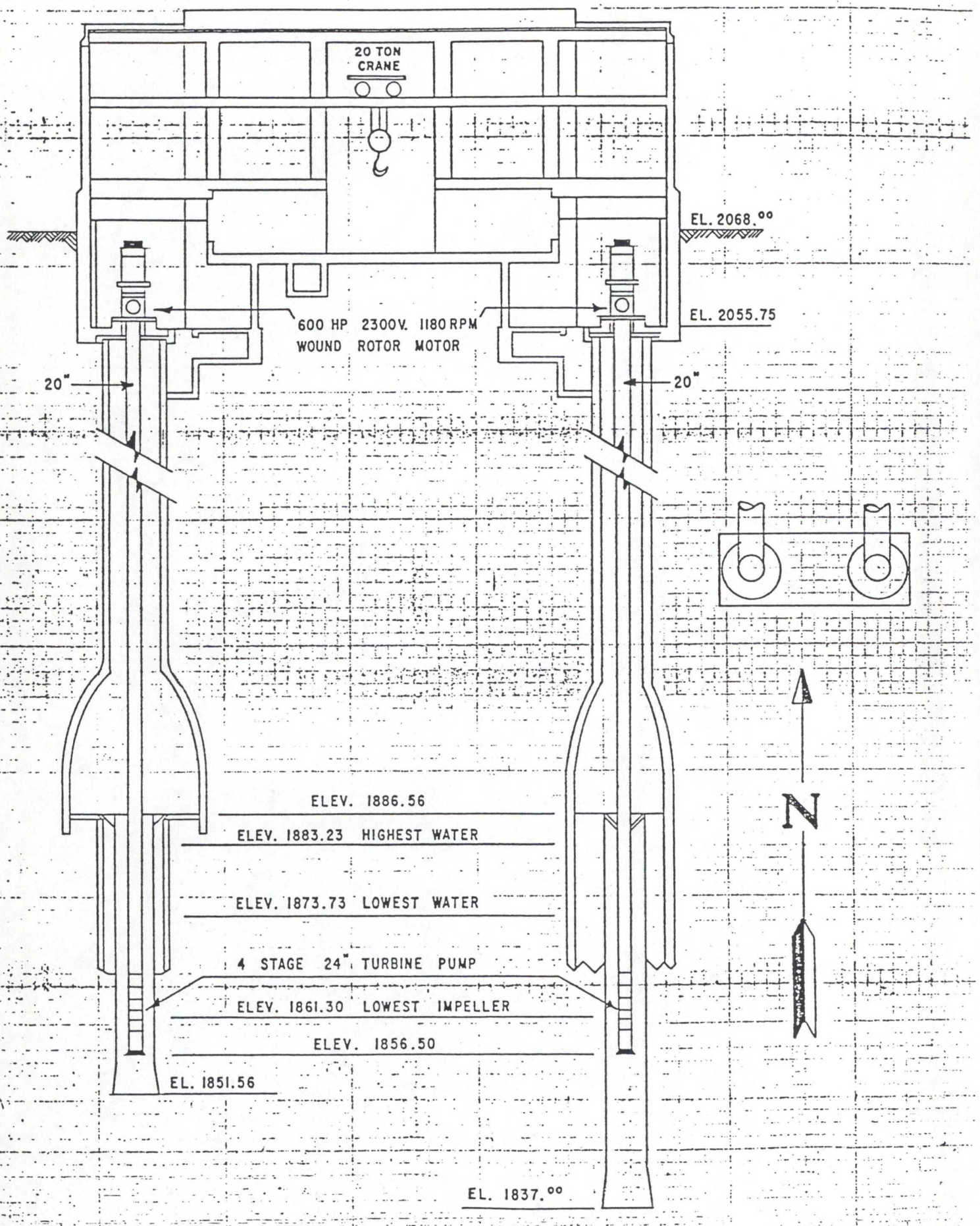
15,700,000 GPD TOTAL RATED CAPACITY
ALL TO NORTH HILL SYSTEM

1990 PUMPAGE FOR HOFFMAN AVE. WELL STATION

216,760,000 GAL. TO NORTH HILL SYSTEM
{ 3.7% of total North Hill Sys. }

{{ HOFFMAN AVE. SUPPLIED 1.0% OF SYSTEM ANNUAL TOTAL WATER }}

HOFFMAN AVE. PUMPING STATION



N/A
out of
4 mi. radius

INDIAN CANYON WELL STATION
3303 W. SPRAGUE AVENUE

SEASONAL APRIL-OCTOBER OWNED BY PARK DEPT.
USED FOR GOLF COURSE IRRIGATION

1 WELL
1748.1 FLOOR ELEVATION
37' AVERAGE DEPTH TO WATER

2 PUMPS { 1-150hp 1-200hp both to golf course }

1,000,000 GPD RATED CAPACITY
ALL TO GOLF COURSE

1990 PUMPAGE FOR INDIAN CANYON WELL STATION

42,650,000 GAL TO GOLF COURSE
{ 100.0 % of total Indian Canyon Golf Irrigation }

{{ INDIAN CANYON SUPPLIED 0.0% OF SYSTEM ANNUAL TOTAL WATER }}

N/A

SIA WELL STATION
NEAR EAST END OF MAIN RUNWAY SOUTHSIDE

INACTIVE WELL

1 WELL
380' DEEP

1 PUMP (1-40hp to SIA Sys.)

575,000 GPD RATED CAPACITY
ALL TO SIA SYSTEM

1990 PUMPAGE FOR SIA WELL STATION

0 GAL. TO SIA SYSTEM

NO CURENT INTENTION FOR ANY FUTURE USE OF THIS WELL

Calculations for Population per distance ring

Well	Distance From Source	Distance Ring (mi)	Population	Ref.
A*	0.75 miles	1/2 - 1	9350 pers/well x 2 wells = 18700 pers	4; 17 p 18
B*	1.12 miles	1 - 2	9350 pers/well x 1 well = 9350 pers	4; 17 p 16
C*	1.2 miles	1 - 2	9350 pers/well x 1 well = 9350 pers	4; 17 p 8
D	1.6 miles	1 - 2	12 pers	4; 15 p 2
E*	1.8 miles	1 - 2	9350 pers/well x 2 wells = 18700 pers	4; 17 p 3
F	1.5 miles	1 - 2	8 pers	4; 15 p 2
G	2.5 miles	2 - 3	2500 pers	4; 15 p 7
H	2.8 miles	2 - 3	90 pers	4; 15 p 7
I	2.5 miles	2 - 3	15 pers	4; 15 p 7
J	2.6 miles	2 - 3	12 pers	4; 15 p 2
K	2.7 miles	2 - 3	50 pers	4; 15 p 2
L	2.5 miles	2 - 3	10 pers	4; 15 p 3
M*	2.1 miles	2 - 3	9350 pers/well x 8 wells = 74800 pers	4; 17 p 6
N	2.7 miles	2 - 3	14 pers	4; 15 p 8
O	2.7 miles	2 - 3	1600 pers/2 wells x 1 well w/in target dist limit = 800 pers	4; 15 p 4
P*	2.5 miles	2 - 3	9350 pers/well x 2 wells = 18700 pers	4; 17 p 12
Q	2.8 miles	2 - 3	6916 pers/6 wells x 2 wells w/in target dist limit = 2305 pers	4; 15 p 4

Well	Distance From Source	Distance Ring (mi)	Population	Ref.
R*	2.6 miles	2 - 3	9350 pers/well x 2 wells = 18700 pers	4; 17 p 14
S	2.8 miles	2 - 3	4050 pers/2 wells x 1 well w/in target dist limit = 2025 pers	4; 15 p 8
T	3.2 miles	3 - 4	2 pers	4; 15 p 1
U	3.1 miles	3 - 4	1 per	4; 15 p 6
V	3.8 miles	3 - 4	5 pers	4; 15 p 6
W	3.2 miles	3 - 4	3 pers	4; 15 p 6
X	3.5 miles	3 - 4	6 pers	4; 15 p 6
Y	3.7 miles	3 - 4	24 pers	4; 15 p 7
Z	3.5 miles	3 - 4	4650 pers/2 wells x 1 well w/in target dist limit = 2325 pers	4; 15 p 5
1	3.5 miles	3 - 4	5100 pers/6 wells x 1 well = 850 pers	4; 15 p 4
2	3.4 miles	3 - 4	5100 pers/6 wells x 1 well = 850 pers	4; 15 p 4
3	3.8 miles	3 - 4	5100 pers/6 wells x 1 well = 850 pers	4; 15 p 4
4	3.1 miles	3 - 4	5100 pers/6 wells x 1 well = 850 pers	4; 15 p 4

Well	Distance From Source	Distance Ring (mi)	Population	Ref.
5	3.7 miles	3 - 4	3469 pers x 1 well 4 wells = 867 pers	4; 15 p 4
6	3.7 miles	3 - 4	3469 pers x 1 well 4 wells = 867 pers	4; 15 p 4
7	3.1 miles	3 - 4	1600 pers x 1 well w/in 2 wells target dist limit = 800 pers	4; 15 p 4
8	3.8 miles	3 - 4	6916 pers x 1 well 6 wells = 1152 pers	4; 15 p 4
9	3.1 miles	3 - 4	6916 pers x 1 well 6 wells = 1152 pers	4; 15 p 4
10	3.3 miles	3 - 4	11899 pers x 1 station 8 stations = 1487 pers	4; 15 p 8
11	3.6 miles	3 - 4	11899 pers x 1 station 8 stations = 1487 pers	4; 15 p 8
12	3.9 miles	3 - 4	11899 pers x 1 station 8 stations = 1487 pers	4; 15 p 8
13	3.4 miles	3 - 4	4050 pers x 1 well w/in 2 wells target dist limit = 2025 pers	4; 15 p 8

* Denotes Spokane Municipal Well. Using Ref 17 p 2-21, population served per municipal well was calculated as follows:

$$\text{No. of pers served per municipal well} = \frac{\text{Approx Total Pop Served}}{\text{Total \# Active Municipal Wells}}$$

17 p 2
17 p 2-21

Total number municipal wells equals twenty-two. However, one well is used for golf course irrigation only (Ref. 17 p 20) and another is inactive (Ref. 17 p 21). The Hoffman Ave. municipal station is pumped on a seasonal basis only (Ref. 17 p 18). Specifically during the summertime. Water drawn from this well is used by residences for drinking water, among other purposes (Ref. 23). For this reason, the Hoffman Ave. municipal station is being included in the total number of active municipal wells. Therefore, the total number active municipal wells equals twenty.

$$\text{No of pers served per municipal well} = \frac{187{,}000 \text{ pers}}{20 \text{ wells}} = 9350 \frac{\text{pers}}{\text{well}}$$

Populations for all other wells within target distance limit were taken from Ref 15 p 1-8.

Distance Ring (mi)	Population (pers)
0 - 1/4	0
1/4 - 1/2	0
1/2 - 1	18700
1 - 2	9350+9350+12+18700+8 = 37,420
2 - 3	2500+90+15+12+50+10+74800+14 +800+18700+2305+18700+2025 = 120,021
3 - 4	2+1+5+3+6+24+2325+850+850 +850+850+867+867+800+1152 +1152+1487+1487+1487+2025 = 17,090